DOES BANK INSTITUTIONAL SETTING AFFECT BOARD EFFECTIVENESS? EVIDENCE FROM COOPERATIVE AND JOINT-STOCK BANKS.

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ABSTRACT

Manuscript Type: Empirical.

Research Question/Issue: Do cooperative banks suffer from board deficiencies less frequently and severely than joint-stock banks? To answer this question, we analyze banks operating in Italy during the period 2006-2012 to examine whether the governing bodies of cooperative banks are less effective in carrying out their duties than those of joint-stock banks. Deficiencies in the governing body are measured by sanctions imposed by the supervisory authority.

Research Findings/Insights: Findings revealed that the boards of directors of cooperative banks were sanctioned more often than board of directors of joint-stock banks. Furthermore, board turnover mediates the relationship between the cooperative status and board deficiencies.

Theoretical/Academic Implications: This study provides empirical evidence in support of the weakness of corporate governance in cooperative banks. Methodologically, our approach is novel in that we adopt a measure of board effectiveness/deficiency based on an independent third-party perspective (supervisory authority) that is not biased by the different objective function of the two types of banks.

Practitioner/Policy Implications: The findings have several policy and managerial implications. We contribute to the ongoing debate on the proposal for flexible regulation of corporate governance for cooperative banks and emphasize that policy-makers and regulators should rethink the corporate governance structures of cooperative banks. In particular, the study reveals how board turnover should be carefully monitored to reduce board deficiencies at the bank level.

Keywords: Corporate Governance, Board Effectiveness, Institutional Setting, Banking Industry, Enforcement Actions.

INTRODUCTION

The recent financial crisis has emphasized the critical role of good corporate governance in banking and revealed how existing regulatory failures could severely impair the stability of the financial system (Beatty & Lao, 2014). In both the US and Europe, the boards of several key financial institutions were found to have been unable to either effectively monitor risk-management systems and executive salaries (the United States and United Kingdom) or guard against conflicts of interest (Spain and Germany). In response to the crisis, since 2009, the Organization for Economic Co-operation and Development (OECD), the Financial Stability Board (FSB), and the Basel Committee on Banking Supervision (BCBS) have revised their standards for corporate governance in areas such as risk management, board structures, compensation, and the role of supervisors. The EU Commission and the European Banking Authority have developed new laws and sub-laws to implement these new standards for the European Union (Capital Requirements Regulation –CRR– and Capital Requirements Directive –CRD– IV). The most recent initiative is by the BCBS with the publication in October 2014 of a consultation paper aiming to revise the document "Principles for Enhancing Corporate Governance" (BCBS, 2010). The response of banks to these initiatives has been different. Joint-stock banks and their governance were at the center of the financial crisis, and they are therefore more willing to comply with new standards to restore the confidence of the market, whereas cooperative banks questioned whether the new principles were sufficiently flexible to respond to the diversity of their business (lower risks, lower volatility and more stable returns) as well as their higher resilience during the crisis (European Association of Cooperative Banks –EACB-, 2015).

In particular, in January 2015, the EACB published notes on the recent BCBS consultation paper and argued that cooperative banks performed better during the crisis than did joint-stock banks because of their specific corporate governance characteristics. However, this

argument challenges the traditional view supported by the theoretical literature based on agency theory that cooperative banks may structurally suffer more from weak corporate governance than do joint-stock banks, causing substantial board ineffectiveness (Alexopoulos, Catturani, & Goglio, 2013; Cuevas & Fischer, 2006; Llewellyn, 2005, 2006; Shaw, 2006).

To contribute to the debate outlined above, this study focuses on the board of directors, which plays a key role in current regulation, as the top of the internal governance system of the banks (EBA, 2011). In particular, the purpose of this work is to investigate whether and to what extent the institutional setting affects the effectiveness of the boards of cooperatives compared to those of joint-stock banks.

To investigate this issue empirically, we take into account that cooperative and joint-stock banks differ in their objectives, in their ownership structure and in the rights that are granted to their owners. As in cooperative firms, members/owners of cooperative banks are also their customers. Membership is not transferable, and is redeemable at a nominal value. Moreover, cooperative banks are characterized by the one-member one-vote per capita regardless of the subscribed capital. Consequently, members cannot accumulate votes by purchasing shares on the market. As for the bank objective, profit-maximization is not the sole business objective of cooperative banks as in joint stock banks, but they pursue the maximization of member's value by offering products and services along with the distribution of profits (Fontayne, 2007).

Given that profitability is not the main objective of cooperative banks, to avoid biased results, we deviate from the literature on corporate governance that focuses predominantly on financial performance as a proxy of the effectiveness of governance. We argue that this comparison should focus on the bank's internal governance system, a limited but crucial component of bank governance that is not affected by bank objectives and/or key bank

stakeholders. As a consequence, we evaluate the board effectiveness of cooperative vs. joint-stock banks using a supervisory authority as an independent third-party perspective. This authority has the power to impose sanctions on the board of directors for misconduct, and we use these sanctions as a proxy for board deficiencies. Although the objectives of cooperative differ from those of joint-stock banks, the supervisory authority has the same objective when supervising both types of banks and their directors: to detect misconduct at the bank level and ensure the financial stability of the banking system. Moreover, this proxy of board deficiency renders our analyses less likely to be affected by endogeneity as the sanctions are the result of regular controls of the supervisory authority, which do not depend on bank behavior.

Based on a unique dataset of the supervisory sanctions imposed on the boards and directors for a large sample of Italian banks over the period 2006-2012, our results show that cooperative boards are more deficient than boards of joint-stock banks. In particular, regression results show that cooperative boards have on average a higher probability of being sanctioned, incurring more violations and, especially for small banks, incurring more severe penalties. Notably, we also find that compared with joint-stock banks, cooperative boards are more likely to be deficient in credit management.

These results are in line with agency theory and less supportive of the current debate on the strength of cooperative bank boards, but they confirm the specialness of cooperative governance mechanisms. Practically, our results suggest that particular attention should be paid to board turnover as we find that turnover mediates the relationship between board deficiency and cooperative status, such that cooperative board members are at greater risk of becoming powerful and entrenched. The results are robust to different dependent variables, model specifications and time periods (pre- and post-crisis).

In this work, we contribute to the literature on corporate governance and the role of institutional settings in board functioning. To the best of our knowledge, the empirical

evidence on the relationship between bank institutional setting and the effectiveness of corporate governance is limited if not absent. Our contribution is twofold. First, we adopt a third-party perspective, which allows the construction of new measure(s) of board deficiency. Second, we develop our empirical analyses based on methodologies from the corporate fraud literature and apply them to bank corporate governance. To the best of our knowledge, both contributions are novel in the literature. Italy has one of the largest cooperative banking systems, and it is worth noting that Italian banks have recently made progress in improving their corporate governance as a result of the implementation of European Directives, specific provisions introduced by the Bank of Italy (BoI), and industry codes of conduct. Our results may improve our understanding of the major weaknesses of existing board regulations. Finally, we believe that our results can have policy implications by making a clear and concrete contribution to the ongoing debate on the revision of the principles for enhancing corporate governance and partially supporting cooperative banks.

The paper is structured as follows. In the next section, we present the theoretical background of our study. Then, we review the literature to develop our research hypotheses. Next, we present the sample and the methodology used to test the hypotheses. Then, we present and discuss the results and the robustness checks. Finally, we discuss the implications of our findings and our conclusion.

THEORETICAL BACKGROUND AND HYPOTHESES DEVELOPMENT

Theoretical Approach

In the agency perspective, the board of directors has a key role in monitoring the managers to prevent them from pursuing their own interests over those of the owners (Fama & Jensen, 1983). In the banking sector, the role of the board is even more critical than in other industry. Banking business is complex and therefore nontransparent to a wide audience of stakeholders

(shareholders, creditors, debtors, regulators, etc.). Llewellyn (2007) shows that financial firms:

- are characterized by complex and nontransparent management, primarily due to the characteristics of financial products (Levine, 2004);
- are relationship- rather than transaction-based businesses involving long-term contracts. This characteristic makes it more difficult for the customers to control relationship dynamics and the decision to get out;
- have a fiduciary responsibility because they manage the wealth of their customers;
- may affect the convenience of contracts with customers by adopting post-contractual opportunistic behavior.

In addition to traditional agency problems affecting the relationship between managers and owners, the banking business suffers from a significant risk of opportunistic behavior at the expense of customers such as depositors and borrowers (Morgan, 2002). Thus, board of directors have a key role in bank governance as they not only monitor management but also provide guidance and advice to managers (de Andres & Vallelado, 2008; Grove, Patelli, Victoravich, & Xu, 2011). After the financial crisis, this role was revised by banking authorities to stress the importance of board of directors in the sound and prudent management of credit institutions. In particular, the European Banking Authority and the Basel Committee have recently placed the board of directors at the top of the internal governance system of banks. It is now responsible for setting objectives for the bank and the level of risk appetite, for bank organization and direction and for the allocation of responsibility and authority. It is also responsible for the organization of the internal control system (including risk control, compliance and internal audits) (EBA, 2011).

The literature has analyzed the factors that could increase board effectiveness. According to agency theory, the effectiveness of the board in monitoring managers is affected mainly by

the number of outside or independent directors involved (Baysinger & Butler, 1985; Fama & Jensen, 1983; Shleifer & Vishny, 1997). Moreover, the literature stresses other board characteristics (board size, CEO duality, frequency of board meetings, executive compensation system, etc.) that may also impact board effectiveness.

In addition to these factors, scholars have highlighted the role of external governance mechanisms (such as the market for corporate control and shareholder activism) as a means to encourage managers and directors to work effectively and to reduce agency problems (Alchian & Demsetz, 1972; Denis & McConnel, 2003; Manne, 1965; Scharfstein, 1988).

In the banking industry, the above-mentioned mechanisms are to some extent modified by the regulator (de Andres & Vallelado, 2008; Levine, 2004). Regulators constraint bank behaviour and complement other governance mechanisms in order to ensure a sound and prudent management by limiting agency problems as well. Moreover, it acts as a key bank stakeholder with a prominent impact on bank governance and ownership (Devriese, Dewatripont, Heremans, & Nguyen, 2004; Dewatripont & Tirole, 1994; Levene, 2004; Tirole, 1994).

The literature has emphasized the influence of ownership on the effectiveness of the board. In general, the institutional setting of a company (namely the legal status of a company, such as: limited by shares, cooperative, etc.), affects ownership structure and governance characteristics as well as owner incentives to monitor top managers and board effectiveness. However, only few studies address this issue in banking empirically (Demsetz, Saidenberg, & Strahan, 1997; Levene, 2004; Saunders, Strock, & Travlos, 1990).

Given the predictions of agency theory and the characteristics of the cooperative model in banking, we argue that the legal status of a cooperative could weaken the role of the board compared with that in joint-stock banks. In the following sections, we discuss the main

features of the cooperative model and develop our research hypotheses in the framework of the recent literature on bank boards.

The cooperative model in banking and main governance characteristics

At the origin of the cooperative banks were the needs of small and local rural communities for access to basic financial services which other banks had neglected because of the lower profit margin they could achieve in these markets. The pivotal role of cooperative banks was indeed to provide loans to its members, mainly farmers and artisans. Given this origin, cooperative banks are considered as part of the heterogeneous world of the not-for-profit organization, whose critical features are still present in current cooperative models (mainly the relevance of the social impact of their activities and some ownership issues). However, in the highly competitive banking system of the last decades, they have adapted their business model by engaging more and more in banking activities closely resembling those of joint stock banks (Gorton & Schmid, 1999). This evolution was supported by an increasing presence in cooperative banks of professional managers, in substitution of the members who once acted as managers. Competitive pressures and regulatory innovation were the main factors behind this change. On the one hand, large banks started to compete with cooperative banks in local markets by means of a widespread expansion of the number of branches. On the other hand, stricter banking regulation (Basle I to Basle II) imposed identical constraints on banks despite their institutional setting (joint stock, cooperative or saving banks). The literature emphasizes the special role of regulation in the banking industry which acts as an external governance mechanism (Devriese, Dewatripont, Heremans, & Nguyen, 2004; Dewatripont & Tirole, 1994; Levene, 2004; Tirole, 1994). To the extent that banking regulation constrains banks in a similar manner, they tend to respond similarly. One recent

example is in the regulatory arbitrage opportunity provided by securitization activities and exploited by both cooperative and joint stock banks before the financial crisis.

However, cooperatives differ from joint-stock banks in several other aspects (Anguren Martin Sevillano & Marques, 2011; Llewellyn, 2005, 2006). The latter are established as joint-stock companies. Their goal is to maximize shareholder value, and they can be listed on the stock exchange. Shareholders are the owners of the bank and represent the residual claimants. On these aspects, cooperative banks maintain some features of not-for-profit organizations: they have multiple objectives and a weak ownership structure. The objective of cooperatives is less clearly defined as these organizations are motivated not only by profit maximization but by a combination of economic and social goals. Cooperative owners/members are also depositors and/or borrowers. Thus, cooperatives satisfy the needs of their members who are at the same time owners and customers. Consequently, profitability is not the main objective of such banks.

As regards the ownership structure, the cooperative model has vaguely defined ownership rights[1] (Chaddad & Cook, 2004). Cooperatives are characterized by a highly fragmented ownership structure with a large number of small owners. Cooperative members have one vote per capita, irrespective of the subscribed capital. Thus, it is not possible to concentrate ownership and its rights in one or a few major owners, and no individual or group is able to control the cooperative (Cornforth, 2004; Llewellyn, 2006). New members are equivalent to existing shareholders in terms of votes at the general annual meeting. There are limits to the amount of shares that owners may possess and to the profit distribution. Most of the profits are set aside as a reserve, whereas only a small portion can be distributed to members[2]. These limitations on ownership rights make it difficult to list a cooperative in a stock market and increase free rider problems and board incentives to extract private benefits (Clifford, 2007; Grossman & Hart, 1980; Hart & Moore, 1998; Maug, 1998).

Since in cooperatives the residual claims to be paid out are limited, any conceivable agency relationship between owners and managers could be partially clouded. However, a conflict of interest between members/owners and managers is still present. Notably, the cooperative model implies a separation of ownership and control (Rasmusen, 1988): managers are the custodians of the wealth of the bank and pursue objectives primarily in the interests of its members (Fontayne, 2007). Thus, managers could be tempted to manage this endowment in their own interest, for example, by increasing their benefits (higher wages, fringe benefits, etc.) (Rasmusen, 1988). Given the weakness of other cooperative governance mechanisms (i.e., shareholder activism, market for corporate control), the bank board remains the main tool by which the interests of cooperative members and managers are aligned (Llewellyn, 2007; Staatz, 1983).

Because of these characteristics, it has been argued that "the core governance problems of [cooperatives as in not-for-profit organizations] arise from their management having generally poor incentives and being shielded from the most potent disciplining devices in for-profit firms, like hostile takeovers, proxy fights, or even independent directors" (Bolton & Mehran, 2006: 296). Moreover, given that the profit is not the unique cooperative objective, it is not an appropriate criterion to force managers to perform their jobs properly (Jegers, 2009). Therefore, the main issue is about how or whether cooperative directors have sufficient incentives to effectively monitor executives (Miller, 2002).

Some authors highlight that directors have strong incentives to monitor managers and perform well because they are also owners. In fact, cooperatives are generally self-administered since the directors are elected from amongst cooperative members (Shaw, 2006). Thus they are inside directors with a long-term interest in the bank, and their investment is relatively illiquid (Ferri, Masciandaro, & Messori, 2001). Moreover, whereas cooperatives operate in restricted geographical areas and mainly in favor of their members,

peer monitoring should increase the effectiveness of social sanction (Hansmann, 1996). Given that in not-for-profit organizations' board members offer their reputation as collateral (Handy, 1995), reputation is a strong incentive for cooperative directors to carry out their work well (Staatz, 1983). Directors aspire to be re-appointed and therefore must maintain a good reputation to avoid being penalized (Fama & Jensen, 1983).

As discussed above, banking regulation complements other governance mechanisms and imposes further disciplinary measures that force board members to adopt more prudent behavior. Notably, the current regulation addresses the role and functions of the bank board despite the institutional setting of banks (BCBS, 2015). In particular, the BCBS states that "The board has overall responsibility for the bank, including approving and overseeing management's implementation of the bank's strategic objectives, governance framework and corporate culture." (BCBS, 2015). Moreover, banking regulation also provides strong incentives to bank boards in order to ensure a sound and prudent management limiting bank risk-taking, hazardous decisions and agency problems (de Andres & Vallelado, 1998). If a bank performs poorly, the supervisory authority may sanction the board or have the power to dismiss the board members or oblige the bank to merge with another bank (Delis & Staikouras, 2011). In a number of jurisdictions, the supervisory authority may put the bank into special administration controlled by a supervisor-appointed administrator (Hupkes, 2005). Therefore, from a regulatory perspective, cooperative boards have incentives to perform at the same level as JSBs boards.

Related Literature and Research Hypotheses

Even if cooperative bank directors have partial incentives to perform their jobs well, they may be tempted to fail to comply with their duty of care or collude with managers

(Holmstrom, 1999). There are at least four potential reasons why cooperative directors (compared with a corporate board) may not perform their tasks well.

First, the high fragmentation of cooperative ownership, along with restrictions on profit distribution and the mechanism of one vote per capita, could reduce owners' incentives to effectively monitor directors or managers. Thus, free-rider problems are more severe in cooperatives than in joint-stock companies (Borgen, 2004; Hart & Moore, 1998; Vitaliano, 1983). These problems are also compounded by the complexity of the banking business, which can further weaken members' involvement in the life of the bank. Consequently, directors and managers may be tempted to extract private benefits or collude to protect their interests (Cuevas & Fischer, 2006; Odera, 2012). For example, managers may set higher wages for themselves, or the directors may press for loans in their favor or that of their friends. More generally, a higher level of managerial discretion or managerial inertia with a low propensity to change and low drive for innovation could characterize the boards of cooperatives.

Second, the ambiguous figure of the owners, who are at the same time customers (depositors and borrowers) and employees, embodies an opaque and poorly defined corporate objective (Hart & Moore, 1998). Consequently, directors could fail in their task of monitoring management due to the ambiguity of cooperative objectives (Richards, Klein, & Wallburger, 1998). Such ambiguity makes it difficult to establish suitable parameters for evaluating management and hinders the design of an effective reward system. However, because of weak property rights and the overlap between members and customers, cooperative members see themselves more as customers than as owners. Therefore, cooperative members might fail to monitor directors or managers because they are more interested in cheap credit or obtaining better conditions on their deposits than in exercising their property rights (Lewellyn, 2007).

Third, the market does not discipline cooperative directors and managers because of the non-tradability of cooperative shares and the weak competition to which such banks are exposed in the local areas in which they operate (Alchian & Demsetz, 1973; Cook & Iliopoulos, 1999; Hart & Moore, 1998; Kontolaimou & Tsekouras, 2010).

Finally, cooperative directors are generally elected from among members (Shaw, 2006), creating agency problems like inside/outside equity (Myers, 2000) and casting doubt on the independence of the member-directors and their propensity to act in the interest of all members (Fonteyne, 2007; Garoyan & Mohn, 1985). In this regard, Dunn, Crooks, Frederick, Kennedy, and Wadsworth (2002) reveal in a survey conducted on US agricultural cooperatives that directors often make decisions based not on economic but on political motivations. Reynolds (2004) shows that in US cooperatives, some managers support the benefits of appointing non-member directors to the board. Therefore, to the extent that the effects listed above outweigh board incentives to perform tasks well, we should expect the board of directors of cooperative banks to be relatively weaker than those of joint-stock banks.

In order to compare the effectiveness of board of directors in cooperative and in JSB, we take the bank supervisory authority perspective and we use as proxies of board deficiency the number of sanctions imposed on board member by the supervisor and their severity. Thus we tested the following hypothesis:

> *Hypothesis 1. In cooperative banks, boards of directors show significant deficiencies pertaining to their duties (as proxied by regulatory sanctions) than boards of directors of joint-stock banks.*

We then extend the analysis to observe whether Board of directors of cooperatives exhibit deficiencies in specific bank processes. We expect that deficiencies in the tasks of cooperative boards are especially likely in credit management. Fontayne (2007) highlights that unlike joint-stock banks, whose goal is to maximize shareholder value, cooperatives are designed to accumulate capital as they have to limit profit distribution to their members. This capital constitutes an intergenerational endowment available to current members that cooperative directors and managers have to enhance and preserve for the next generation. The author suggests that because of reduced incentives for members to effectively monitor top management in cooperatives, the latter could manage the cooperative endowment in their own interests or to the benefit of specific constituencies. Therefore, board members may be less effective in selecting and monitoring borrowers, facilitating loans to their friends or to members who elected them. Theoretically, the problem of soft budget constraints – discussed, for example, in Bolton and Sharfstein (1996) and Kornai, Maskin, and Roland (2003) – may explain this effect.

Therefore, we developed the following hypothesis:

> *Hypothesis 2. In cooperative banks, boards of directors show significant deficiencies in credit management (as proxied by regulatory sanctions) than boards of directors of joint-stock banks.*

The Role of Board Turnover in Cooperative Board Deficiency

We further extend our investigation to identify board characteristics that play a major role in explaining the deficiency of a cooperative board. In particular, we focus on board turnover. The turnover of board members or top managers is a disciplining mechanism that pressures these subjects to act in the interests of shareholders. In fact, the latter can threaten dismissal if

the former do not act in the interests of the owners (Hermalin & Weisbach, 2003; Kaplan, 1994).

However, as noted above, in cooperative banks, the mechanisms by which board members are disciplined, including replacement of directors, are significantly weakened.

Consequently, cooperative models increase the risk that board members will become powerful and entrenched as they are insulated and protected from internal and external pressures (Spear, 2004). The literature highlights that compared with a joint-stock bank, a cooperative has less board turnover (Battistin, Graziano, & Parigi, 2012; Ferri, Masciandaro, & Messori, 2001; Stefancic, 2014). Thus, cooperative directors remain in their position for long periods, even if they perform their duties inefficiently. Consequently, board members can exploit cooperative resources to pursue their advantage, for example, to protect their position. Directors may represent the interests of one group of members, perhaps those who elected them, and, in some cases, may represent only their own interests. Of course, the low level of board turnover negatively affects the independence of board members. Directors who sit on the board for too long tend to develop close relationships with managers; as a result, the effectiveness of their monitoring is weakened. Therefore, we aim to test the hypothesis that director turnover mediates the relationship between the cooperative model and the ineffectiveness of the board:

> *Hypothesis 3. Board turnover mediates the relationship between cooperative banks and board deficiencies (proxied by regulatory sanctions). In particular, cooperative model characteristics lead to low board turnover, which in turn leads to high board deficiencies.*

RESEARCH DESIGN: SAMPLE, VARIABLE AND ESTIMATION FRAMEWORK

Cooperative banks represent an important part of the banking system of many European economies (Groeneveld & Sjauw-Koen-Fa, 2009), with Austria, Finland, France, Germany, Italy and the Netherlands having the largest segments. In particular, European cooperative banks adhere to the European Association of Cooperative Banks (EACB) and share many characteristics (Fontayne, 2007; Shaw, 2006).

To test our research hypotheses, we examined the Italian banking industry. Italy is an interesting case because it has a well-developed system of cooperative banks (Giagnocavo, Gerez, & Sforzi, 2012). Excluding the branches of foreign banks, the Italian banking sector currently consists of approximately 600 banks with a network of over 30,000 branches across the country. The cooperative is the most widespread form of bank in Italy, with a strong presence in local areas. Specifically, more than 70 percent of Italian banks are cooperatives, with joint-stock banks constituting the remaining 30 percent (Statistical Database of the Bank of Italy, 2015).

Italian Banking Law (Legislative Decree no. 385/1993) stipulates that banks be established as joint-stock companies or as cooperatives (Art. 14). Cooperative status can be adopted by the Italian Banche di Credito Cooperativo (BCCs) (Art. 28) and by the Italian Banche Popolari Cooperative (BPs) (Tarantola, 2009). Although they are both cooperative banks, the BCCs and BPs have significant differences. The main similarity involves the voting rights of their members, who are entitled to one vote each. Despite this likeness, BCCs and BPs differ in several ways. In particular, BCCs can operate only in a limited area and serve principally their members; the members of the bank must reside or permanently work in the reference territory of the bank. Furthermore, the banks must allocate almost 70 percent of their annual net returns to the legal reserve. Finally, BCC members elect the directors from amongst themselves. Unlike BCCs, BPs operate everywhere and serve everyone (including non-members). The BPs must allocate at least 10 percent of their net profits to the legal reserve,

whereas the remainder can be distributed to members. Finally, BPs can list their shares on a stock market. Therefore, BPs constitute a hybrid category with characteristics of both joint-stock banks and BCCs. However, from a dimensional and operational viewpoint, BPs are closer to the first category. In fact, unlike BCCs, which are small banks that operate locally and offer simple and unsophisticated financial services, BPs are large banks and operate on a national or international scale, offering a wide range of financial products to meet the needs of various customers (Tarantola, 2009). Given the characteristics of BPs, to avoid confounding effects, our analysis is based only on Italian BCCs and joint-stock banks.

Sample and Data Collection

Our research hypotheses are tested on Italian banks in the period 2006-2012. Based on the statistical information system of the Bank of Italy, we identified the banks operating in Italy in the years under observation. In particular, we focus on banks established as joint-stock banks and on cooperative banks, namely, the Italian BCCs. We excluded from our analysis branches of foreign banks and BPs. We selected 2006 as the starting year of the analysis to avoid non-comparability issues in financial reporting as, prior to 2006, Italian banks drew up financial statements according to Italian accounting principles, whereas beginning in 2006, they prepared their financial statements according to IAS/IFRS accounting principles.

We identified 727 cross-sectional units that were operative over the period under investigation (2006-2012). In this group, we also included banks that opened for business after 2006, as well as banks that closed down before 2012, with the constraint that information must be available for at least two consecutive years (Pathan, 2009). From this initial group, we thus eliminated 89 banks due to a lack of data or missing information. Finally, we excluded all year observations pertaining to banks that in the period under review, were subjected to extraordinary measures by the supervisory authority (special

administration, interim management, etc.). The final sample is composed of 638 banks: 198 joint-stock banks and 440 cooperative banks.

We collected our data from different databases. From the statistical information system of the Bank of Italy, we collected all demographic information (bank name, location, age, etc.) related to operative Italian banks over the time period and information about banks that acquired other banks in the same period. In addition, from the Bank of Italy website, we downloaded the Supervisory Bulletins to retrieve information on penalties imposed by the supervisory authority on the directors of Italian banks. The Bank of Italy publishes a monthly Supervisory Bulletin to make public sanctions imposed on the boards of directors of the banks. From these reports, we retrieved i) the governing bodies that were punished, ii) the list of infringements and relative description of board/director misconduct that constitutes the rationale for the penalty, iii) the bank processes in which the violations were detected, and iv) the (total) amount of the penalty.

Data on bank board characteristics were hand-collected by consulting governance reports and financial statements available on bank websites. We checked and supplemented this information, when necessary, by consulting the ABI (Associazione Bancaria Italiana) Yearbooks. The Yearbook is published yearly by the Italian Banking Association and reports the composition of the governing bodies for each bank operating in Italy. Finally, we used the database Bankscope to collect bank balance-sheet data and further checked and supplemented these data by consulting the annual financial statements of each bank.

The data collection returned an unbalanced panel of 4176 observations. In particular, only 6.66 percent of yearly observations referred to banks whose directors were punished by the Authority. On average, 41 banks have been sanctioned each year.

The Dependent Variable - Sanctions of the supervisory authority issued to board members

Given our aim of studying the board of directors in cooperative versus joint-stock banks, the use of financial performance as a proxy for the effectiveness of corporate governance (Dalton, Daily, Johnson, & Ellstrand, 1999; de Andres & Vallelado, 2008; Hermalin & Weisbach, 2003; Grove, Patelli, Victoravich, & Xu, 2011; Yermack, 1996) could raise concerns about the significance of our results (potential bias) as cooperative and joint-stock banks differ in their corporate objectives. As noted above, profitability is not the main cooperative objective (Fontayne, 2007).

Therefore, to test our hypotheses, we decided to use the supervisory authority perspective and focus on internal governance systems, a limited but crucial component of bank governance (EBA, 2011). The Authority (in Italy, the Bank of Italy) monitors the internal governance system (art. 22, Directive 2006/48/EC), regardless of the institutional setting. Thus, we used as our dependent variable the sanctions imposed by the Bank of Italy as a measure of the quality of internal governance systems. In particular, the sanctions could be considered evidence of deficiencies in board functioning. This variable seems more appropriate for the study of differences between the governance of cooperative and joint-stock banks because it is independent of bank objectives and from the key bank stakeholders (shareholders, customers, etc.).

Supervisory activity takes place on a regular basis and outside the control of the supervised banks. In particular, the Authority continuously monitors the behavior of banks through on-site control and off-site control based on the regular information that banks are obliged to submit to the Authority (Bank of Italy, 2012). When the Authority detects director behavior that does not meet the standards of sound and prudent management, as required by the

regulation, the Authority is entitled to punish the directors and make the sanctions public through the Supervisory Bulletin.

In particular, for each sanction reported in the Bulletin, the Authority lists the infringements that motivate the sanction. The motivation generally refers to deficiencies in specific area (i.e. credit management, risk management and internal controls). Detailed information on the causes of the deficiency is not provided. However, anecdotal evidence suggests that sanctions might be caused by directors pushing for a more favourable screening of a (large/relevant) customer even in the case of incomplete or missing documentation or if its solvency requirements are insufficient, stretching the loan policy of the bank beyond the limits set by internal regulations or by the supervisory provisions. Another example could be that they can approve employees' activities related to operations which are above the risk limits imposed internally or externally by supervisory provisions and eventually generate losses.

Notably, the Bulletin reports the identities of the directors[3] responsible for these violations, and the penalty to be paid. The amount of the penalty is calculated by following the standards set by law and the supervisory provisions (Bank of Italy, 2012); the Authority has no discretionary power in its definition. In particular, the law sets the minimum and maximum limits on the amount of the penalty and the criteria used to determine it. Specifically, the law states the rules to determine the amount of the penalty, which is conditional on the seriousness of the violation. In this regard, the supervisory rules set by the Bank of Italy establish that the severity of the violation must be assessed by considering various factors, including the size of the bank, the effects that the violation has on the condition of the bank (i.e., credit losses), the activity that those responsible for the violation have taken to mitigate the consequences of the infringement (i.e., the violation is reported voluntarily during the inspection), etc. (Bank of Italy, 2012)[4]. The directors may appeal to the court to cancel the sanction.

In collecting this data, we consider that on average, there is a time gap of one year between the time when the board commits a violation and when the supervisory authority reports the sanction in the Bulletin. As our research covers the time span 2006-2012, we examined the Supervisory Bulletin over the period 2007 to 2013. To match as precisely as possible a sanction to a given year *t* when the violation was committed and not simply published by the Authority, we base our identification on the following information:

- each director is elected to sit on a board for at least 3 years and then can be reelected or not.
- due to the maturity of the directors' mandate, the composition of the board changes every year on average, at least for some members.
- more than 95 percent of the sanction reports we examined involved all board members (i.e., each of them is sanctioned).

Therefore, we used the following criteria:

1. We check the year(s) in which the directors who received the sanction were members of the board.
2. To precisely assign the sanction to one of these years, we compare the composition of the board in each of them and the directors mentioned in the sanction report as composing the board at the time of the violation, allowing us to exploit changes in board compositions to determine the year of the violation.
3. As a residual criterion, we allocate the sanction to the last year the directors were on the board, based on criterion 1. This last criterion was used in 5 percent of the sanctions' allocation.

Practically, for each bank *i* in year *t*, we collected the available information and created the following variables: i) a binary variable (1/0 - penalty/no penalty) to detect whether the board of a bank has been sanctioned; ii) a count variable to measure the number of infringements

reported by the Authority; iii) the amount of the fine imposed on the directors as a proxy for the severity of the violation. In addition, we recorded the rationale that justifies the sanction. The sanction report does not mention the specific facts but refers to a generic description of violations and to the rule that has been infringed, allowing us to assign the violations to specific bank processes. In more than 95 percent of the cases we examined, the Authority reported three types of violations:

1. deficiencies in organizational and internal controls;
2. deficiencies in credit management;
3. deficiencies in risk management.

Thus, we built three dummy variables for each of the above-mentioned categories.

As sanctioned directors may file an appeal to the court, we also verify whether the court has dismissed the sanction. This information was obtained from the Supervisory Bulletin and from the website of the Italian administrative justice.

Key Independent and Control Variables

To test the first two hypotheses, which relate to the relationship between board deficiencies and bank institutional setting, our key independent variable is a dummy variable equal to 1 for cooperative banks. Joint-stock banks are the baseline category.

To avoid spurious relationships between dependent and independent variables, we considered a set of control variables to account for bank and board characteristics and thus control the factors that may affect the quality of the board's work and the effort of the Supervisory Authority in detecting board misconduct.

The quality of governance is influenced by firm characteristics (Markarian & Parbonetti, 2007). Therefore, a first group of variables controls for bank size, bank age and the ratio of loans to total assets as a proxy for the bank business model (de Andres & Vallelado, 2008).

We measure bank size as the natural log of total assets at the end of the fiscal year. Bank age is calculated as the natural log of the age of a bank.

A second group of variables accounts for some differences across the banks that may have effects on the supervisory authority's effort in detecting board deficiencies through regular controls. Indeed, we acknowledge that the Authority can exert greater or lesser effort given certain bank conditions, leading to a greater or lesser number of detected infringements that determine the amount of the penalty. In this group, we considered whether a bank is listed in a stock market; whether in year *t*, a bank acquired another bank; the bank risk; and abnormal profitability (Khanna, Kim, & Lu, 2014; Wang, 2013). In general, listed companies are more closely scrutinized by investors, authorities, the stock market, etc. (Dyck, Morse, & Zingales, 2010). High risk, abnormal profitability and acquisitions may induce the Authority to exert greater effort in controlling the bank on a regular basis. We measure the bank's risk level as the natural log of the ratio of non-performing loans (NPL) and gross loans as a proxy for credit risk taking. Abnormal profitability was measured with a dummy variable that was equal to 1 if the ROE of the bank *i* in the year *t* was higher or lower than the 90th or 10th percentile, respectively, and equal to 0 otherwise. Finally, we considered a dummy variable that was equal to 1 if bank *i* in time *t* fulfilled an acquisition and equal to 0 otherwise.

As control variables on the board level, consistent with the agency perspective, we considered the following factors to explain the quality and deficiencies of the board.

Board size was expressed as its natural log. In agency theory, board size is a key mechanism that impacts the effectiveness of board monitoring. The literature highlights the negative relationship between board size and the effectiveness of the board in carrying out its duties (Eisenberg, Sundgren, & Wells, 1998; Hermalin & Weisbach, 2003; Jensen, 1993; Yermack, 1996). As board size increases, the board loses effectiveness and efficiency in both decision making and monitoring management. In other words, as board size grows, coordination

issues, free riding or shirking may increase. With mixed results, in banking literature board size is also considered to enhance board effectiveness (Adams & Mehran, 2011; de Andres & Vallelado, 2008; Grove, Patelli, Victoravich, & Xu, 2011; Pathan, 2009).

Gender diversity was expressed as the proportion of female directors on board. It is one of the demographic characteristics that influences board effectiveness. In agency theory, scholars suggest that the presence of women on the board increases the independence of the board and improves the monitoring of management (Carter, Simkins, & Simpson, 2003; Terjesen, Sealy, & Singh, 2009).

Frequency of board meetings was expressed as its natural log and is a proxy of the effectiveness of the board in monitoring managers (Conger, Finegolda, & Lawler, 1998; de Andres & Vallelado, 2008; Grove, Patelli, Victoravich, & Xu, 2011).

Board turnover. We calculated our proxy for board turnover following Eldenburg, Hermalin, Weisbach, & Wosinska (2004):

$$\frac{(N.of\ \ new\ directors\ at\ t)+(N.of\ \ directors\ that\ left\ the\ board\ between\ t\ and\ t\ -\ 1)}{2\times(Board\ \ size\ at\ t\ -\ 1)}$$

$$\frac{(\text{N.of new directors at } t)+(\text{N. of directors that left the board between } t \text{ and } t\text{-1})}{2\times(\text{Board size at } t-1)}$$

The literature shows that the replacement of the directors is a means to encourage them to do their job properly (Franks, Mayer, & Renneboog, 1995; Kang & Shivdasani, 1995; Kaplan, 1994). In addition, board turnover is also a measure of the risk of entrenchment as low levels of director turnover increase the risk of entrenchment (Schulze, Lubatkin, Dino and Buchholtz, 2001).

In addition, we considered the **governance model** of banks. Italian commercial law stipulates three alternative governance models. The so-called traditional model is based on the presence

of a Board of Directors and a Board of Statutory Auditors. The Board of Directors guides and monitors management. The Board of Statutory Auditors is the body entrusted with monitoring board of directors by law (Melis, 2004). Specifically, it must verify that directors' behavior complies with the law and the bank statute. In 2004, company law reform provided two additional governance models: a one-tier and a two-tier board that reflect the Anglo-Saxon and the German model, respectively. However, the most widespread corporate governance model is the traditional one, which is used by more than 99 percent of Italian banks. The remaining portion uses a two-tier board model. No bank uses the one-tier model. Thus, we considered a dummy variable equal to 1 for banks using a two-tier governance model and equal to 0 otherwise.

Although the literature considers that when the CEO serves as board chairman (CEO duality), board monitoring is affected, there are no conclusive data on the effects of CEO duality on corporate governance mechanisms (Baliga, Moyer, & Rao, 1996; Bhagat & Black, 2008; Brickley, Coles, & Jarrell, 1997; Fama & Jensen, 1983; Jensen, 1983; Rechner & Dalton, 1991). We opted to consider this factor as a control variable. Notably, in Italian banks, CEO duality is limited to a few cases. Therefore, we excluded such cases from the analysis. However, in Italian banking industry, the presence of the role of the CEO is limited to larger and more complex financial institutions, e.g. listed banks. We highlight that based on the information collected from the annual year books of the Italian Banking Association the CEO is absent in cooperatives banks but also in the large majority of JSB in our sample (only 4 percent are listed).

Furthermore, the literature notes that the presence of independent directors on the board is beneficial. As their interests should not be aligned with those of managers, independent directors increase the quality of corporate governance because they contribute to better monitoring of managers (Boyd, 1994; Fama, 1980; Rechner & Dalton, 1991). However, we

omitted this variable from our estimations because independent directors are not easily identifiable in cooperative banks. As noted previously, in these banks, directors are elected from among the owners, who are also customers of the bank, as depositors or debtors. Therefore, it is doubtful that the directors are independent (BCBS, 2015; EACB, 2015; Garoyan & Mohn, 1985; Grove, Patelli, Victoravich, & Xu, 2011). For this reason, we considered it inappropriate to control for this variable, which would create multicollinearity problems with the dummy variable for cooperatives. Moreover, we argue that the board turnover that we consider as control variable can help in this regard because it can be expected that in the presence of high levels of director turnover, entrenchment problems are less likely to arise; therefore, board members should be able to closely control managers (Boubakri, Dionne, & Triki, 2008).

Finally, to limit spurious relationships related to differences in the economic, social and cultural conditions of the various Italian geographical areas that could affect bank governance, we controlled for **bank location** (Beck, De Jonghe, & Schepens, 2013; Boytsun, Deloof, & Matthyssens, 2011; Guiso, Sapienza, & Zingales, 2004). We created three dummy variables for Northwest Italy, the Central and South and Islands[5]. The Northeast area is used as a baseline.

All models are estimated taking into account time fixed effects to control for changes in macroeconomic conditions or in the supervisory approach.

Summary statistics

Table 1 presents the descriptive statistics for our main variables. Table 2 shows an analysis of the frequency of sanctions imposed by the Authority on each type of bank and the temporal trend in the sanctions. Table 3 shows, for our main variables, a comparison of the means of joint-stock and cooperative banks and the difference in means between banks with sanctioned and non-sanctioned boards. In Table 5, we present the correlation matrix.

Insert Table 1 about here

As shown in Table 1, in 2006-2012, the supervisory authority reported on average approximately .13 infringements every year, or approximately one infringement every eight years per bank. The severity of the penalty imposed by the Authority was on average 11,422 euros, with a maximum of approximately four million euros.

In Table 2, we analyze the temporal trend of the sanctions imposed on the boards of Italian banks to shed light on how common it is to receive sanctions in more than one year. These data provide information on banks' ability to repair the deficiencies detected by the Authority. Our results show that 219 (34 percent of our sample) bank boards were sanctioned at least once in the period 2006-2012 for a total of 288 events/sanctions. Thus, some boards were sanctioned several times in the period examined.

Insert Table 2 about here

In particular, 55 boards were sanctioned two or more times; 13 were sanctioned three or more times; only one was sanctioned for a fourth time. Therefore, 164 (219 – 55) banks' boards were sanctioned only once (75 percent), 42 (55 – 13) banks' boards were sanctioned twice (19 percent), 12 (13 – 1) were sanctioned three times (5.5 percent), and one was sanctioned four times (0.5 percent). Therefore, only 25 percent of banks boards were sanctioned more than once. In other words, recidivism is not high, suggesting that sanctions tend to improve bank governance. Moreover, cooperative banks constitute the majority of sanctioned banks (see Table 2). Finally, we emphasize the temporal trend in sanctioned boards. In particular, 2008, the start of the financial crisis in Italy, marks a significant increase in the number of banks whose board has been sanctioned by the Authority; this number remained high until 2011.

As regards joint-stock and cooperative banks characteristics there are significant differences between these two groups of banks in terms of bank structure and board characteristics (see Table 3). In particular, compared with joint-stock banks, cooperative banks are smaller in size ($t = 49.22$, p .001) and are have been in business longer ($t = – 27.26$, $p < .001$). Their business model is primarily based on loan activity ($t = – 4.60$, $p < .001$), and they are at greater credit risk ($t = – 15.80$, $p < .001$). Compared with the boards of joint-stock banks, the boards of directors in cooperative banks tend to be smaller ($t = 14.36$, $p < .001$) and have a greater proportion of female directors ($t = – 7.06$, $p < .001$). In addition, in cooperative banks, board turnover is significantly lower than in joint-stock banks ($t = 13.17$, $p < .001$). Finally, there is no difference between these two groups of banks regarding the yearly number of infringements committed by their board of directors. However, the supervisory authority tends to impose more severe penalties on the boards of joint-stock banks than on those of cooperative banks ($t = 3.77$, $p < .01$), as expected.

Insert Table 3 about here

Table 3 also shows that banks with sanctioned boards are younger ($t = 3.29$, $p < .01$), riskier ($t = – 9.48$, $p < .001$) and less profitable ($t = 7.79$, $p < .001$). In addition, the two groups of banks differ significantly in regard to board size and board turnover. In particular, compared with other banks, those whose boards were sanctioned tend to have larger boards ($t = – 2.66$, $p < .01$) and lower board turnover ($t = 4.41$, $p < .001$). To control for the large difference in the number of observations in each group (278 for sanctioned banks vs. 3898 for banks with no sanctions), we also ran the non-parametric Mann-Whitney U test. The results (not tabulated) are aligned with those in Table 4.

Finally, Pearson correlation coefficients between our main variables are quite low, suggesting that multicollinearity problems in our models are modest (Table 4).

Insert Table 4 about here

In particular, the number of infringements and the severity of the penalty are significantly associated with almost the same variables at the board and bank levels. The number of infringements and their severity are positively associated with credit risk (NPL/Gross loans) and the size of the board and negatively associated with profitability and board turnover (see Table 5). Therefore, the boards of banks most exposed to risk are more likely to commit a large number of violations, and these violations tend to be more severe. At the same time, the boards of banks with high profitability are less likely to commit violations, and the violations they do commit tend to be less severe. Finally, low board turnover is associated with a greater number of violations by directors, and the violations tend to be more severe. This association appears to confirm that low turnover increases the risk of directors carrying out their duties badly due to the greater probability of collusion with the managers or efforts to protect their position.

Moreover bank age is negatively associated with the number of infringements, suggesting that in the older banks, the board commits fewer violations. Bank size is positively associated with the severity of the penalty, suggesting that in larger banks, the board commits more severe violations.

Methodology

To determine whether board deficiencies are higher in cooperative banks than in joint-stock banks, we constructed the following panel model:

$$Board\ deficiencies_{i,t} = \beta_0 + \beta_1 Cooperative_{i,t} + \beta_j Control\ variables_{i,t} + \beta_k Years + \varepsilon_{i,t} \quad [1]$$

We measured board deficiencies as a dummy variable equal to 1 if the board of bank *i* in the year *t* was punished by the supervisory authority and equal to 0 otherwise. In addition to the control variables discussed above, we also consider the dependent variable lagged one year. This variable is important for the following reasons:

- to control the effort of the Authority to control a bank whose board has already been sanctioned;

- to determine whether the board of bank *i* that was sanctioned in a previous year ($t - 1$) will receive a sanction in the next year *t*. The sign and the significance of the coefficient provide information on the consequence of enforcement actions and therefore on the ability of a sanctioned board to improve its performance.

To model the dependent variable, we used nonlinear models. Instead of OLS regression, the literature suggests employing a logit or probit model (Cameron & Trivedi, 1998). We chose the probit model because of its usefulness in dealing with certain specification problems (Wooldridge, 2009).

In determining the specification of the model, we considered the panel structure of our dataset. Although we excluded a panel model with cross-section fixed effects (since our independent variable is time invariant), the likelihood ratio test rejected simple pooled specification. Therefore, we used the random-effects specification. However, the pooled specification yielded similar results (not tabulated).

To verify that our results are not biased by the definition of our proxy for bank board deficiency, we re-estimated the model [1] using two alternative dependent variables with two regression techniques.

In the first alternative, we used a count variable for the annual number of violations reported and imposed by the Authority with a negative binomial model (Cameron & Trivedi, 1998)[6]. The likelihood ratio test rejected the need for a panel specification of the model, so we

estimated a pooled negative binomial model. The Vuong test rejected a zero-inflated specification of the model (see Table 5, column 2). Thus, we estimated a standard negative binomial model.

In the second alternative we used the amount of the sanction as a proxy of board deficiencies; compared with other board deficiency-related variables, this number includes information about the severity of the violations. The sanction amount is a continuous variable with a large proportion of zeros, such that its distribution is clearly right-skewed. In our dataset, only 6.89 percent (288 on 4176) observations refers to sanctioned boards[7]. For that reason, the literature suggests a two-part model (Duan, Manning, Morris, & Newhouse, 1983, 1984).

The two-part model assumes that two processes generate the data. The first process generates the probability that a board will be sanctioned by the supervisory authority. Conditional on the first process, the second determines the severity of the sanctions[8]. The first part of our model specifies a binary outcome model to explain the probability that a board will be sanctioned:

$$Y^* = \begin{cases} 0 \ for \ Y = 0 \\ 1 \ for \ Y > 0 \end{cases}$$

Then,

$$\Pr(Y^* = 1 | X) = \Pr(Y > 0 | X) = G(X\theta) \qquad [2]$$

where X is a matrix of explanatory variables, θ is a vector of variable coefficients and $G(\cdot)$ is the probit (or, alternatively, logit) function. The model is estimated on the full sample. Now, suppose that for sanctioned boards, the following equation determines the severity of the sanctions:

$$Y = \beta X + \varepsilon \qquad [3]$$

where X is a matrix of explanatory variables and β is a vector of variable coefficients. This second part is conditional on $Y > 0$; as a consequence, it is estimated on the sample of non-zero observations using an appropriate model (OLS, negative binomial for count, etc.). This model explains how the explanatory variables affect the severity of the sanctions.

Given this methodological approach, we estimated the first part of the model on the whole sample of observations. We used a probit model with the dummy variable sanctioned/not sanctioned as the dependent variable. Evidently, this first part is similar to model [1]. The second part of the model uses only observations relating to banks whose board had been sanctioned in 2006-2012. For this second part, we used an OLS regression with the natural logarithm of the amount of the penalty as the dependent variable.

To test the second hypothesis, we estimated a panel probit model with the probability that the board was sanctioned for deficiencies in credit management as the dependent variable.

Indeed, the aim of this analysis was to exploit the different types of sanctions imposed by the Authority to further investigate whether cooperative board deficiencies are associated with any one type. As stated previously, cooperative board members may be more likely to be deficient in credit management. Although we do not have a specific hypothesis about board deficiencies in organization and internal controls and risk management, we also estimate and report the results of the models with the probability that the board had been sanctioned for deficiencies in these two areas as the dependent variable (see Table 6). The specification of these three models in terms of the independent and control variables is similar to that used in model [1].

Finally, to test the third hypothesis regarding the mediating effect of board turnover, we followed the approach of Baron and Kenny (1986) (Table 8). Therefore, as a first step, we tested for a significant relationship between the independent variable and the mediator by estimating the following panel model:

$$Board\ turnover_{i,t} = \beta_0 + \beta_1 Cooperative_{i,t} + \beta_j Control\ variables_{i,t} + \beta_k Years + \varepsilon_{i,t} \quad [4]$$

As control variables, we used the natural log of total assets, the natural log of bank age, the ratio of loans to total assets, the risk of the bank and the natural log of bank performance (ROE), which we lagged one period to prevent simultaneity bias. Finally, we used a dummy variable to account for the geographical location, a dummy variable for listed banks and a dummy for banks adopting a two-tier board model (Eriksson, Strøjer Madsen, Dilling-Hansen, & Smith, 2001; Liu, Wang Zhao, & Ahlstrom, 2013).

We then estimated the relationship between the independent variable (cooperative bank dummy) and the probability that the board may be punished. To test this relationship, we estimated again the model [1] but removing the board turnover variable. We also tested the relationship between the mediator and the dependent variable (model [1] less the independent variable). Finally, we combined the two previous models and tested whether the cooperative-bank dummy variable affects the dependent variable through board turnover, as described in model [1]. The hypothesis on the existence of a mediating effect is supported if the mediator reduces or cancels the effect and/or the significance level of the relationship between the independent variable and the dependent variable.

Endogeneity issue

Endogeneity is a recurring issue in corporate governance research addressing the link between firm performance and governance practices. In this setting, endogeneity is mitigated by the source and construction of the dependent variable, which is based on the power of the supervisory authority to sanction the banks' directors (our proxy for board deficiency). The probability that the board has been sanctioned, the number of detected violations and the amount of the assigned penalty are all essentially exogenous to the bank. First, the probability that the board comes to the attention of the Authority and then is sanctioned is exogenous

because the Authority supervises banks on a regular basis (both off-site and on-site), regardless of the willingness of the bank, its activities, their specific attributes or performance. However, we recognize that supervisory effort in detecting the violations may be affected by the bank's overall conduct, and thus we control for that factor. Moreover, the amount of the penalty is also specified *ex-ante* on fixed criteria by regulation. Thus, it is exogenous to the bank (Wang, 2006).

Furthermore, the independent variable of interest is an exogenous variable. Indeed, in banking industry regulation affects the corporate governance of banks, first by fixing the institutional settings that banks can adopt. Therefore, banks are not free to use the optimal ownership structure for them or adapt it to their needs (Gorton & Schmid, 1999). In our dataset, the dummy variable for cooperative bank status is time-invariant. Therefore, there is no simultaneity bias between the institutional setting of a bank and the deficiencies of the board.

RESULTS

In this section, we present the results of our analyses. In Table 5, we show the results of our regression models for Hypothesis 1 (the association between bank institutional setting and deficiencies in the boards of directors). In particular, we predicted a positive association between cooperative-bank status and board deficiencies. We first measured board deficiencies using the probability that the board had been sanctioned by the supervisory authority. In column (1), we show the results of the probit panel model estimated with clustered robust standard errors.

Insert Table 5 about here

We found a positive and significant association between the cooperative-status dummy variable and the dependent variable ($\beta = .35$, $p < .01$). Therefore, we conclude that the boards of directors of cooperative banks are more likely to incur sanctions, suggesting that they are more likely to be deficient in their tasks than the boards of joint-stock banks. Thus, our first hypothesis was not rejected. Our control variables have the expected signs, and the coefficients reveal that low board turnover leads to high board deficiency.

In column (2) of Table 5, we report the estimates of a standard negative binomial model with the number of infringements reported by the supervisory authority to the board of the bank as the dependent variable. We estimated the model using clustered robust standard errors. The results in column (2) are in line with those in column (1). In particular, it appears that the boards of cooperative banks on average commit more violations than the boards of joint-stock banks ($\beta = .55$, $p < .05$).

Finally, in column (3), we present the results of the two-part model with the amount of the penalty imposed on the board by the supervisory authority as the dependent variable. The model is estimated with a simultaneous covariance matrix of the sandwich/robust type, which was obtained by combining the estimation results of the first and second parts. In column (3a), we show the results of the probit model that represents the first part of the model. As expected, the results of this first part are similar to those in column (1) as the dependent variable is the same. In column (3b), we show the results of the second part of the model, an OLS model estimated on non-zero observations. We found a significant and negative relationship between cooperative bank status and the severity of sanctions imposed by the Authority, suggesting that although the boards of cooperative banks have a higher probability of incurring penalties, those penalties tend to be less severe (lower amounts). However, this effect may be influenced by the regulatory criteria used to assess the penalty as the severity of penalties is related to the size of the bank in terms of total assets (Bank of Italy, 2012).

Therefore, in column (3c), we show the results of the model that includes an interaction term between bank size and the cooperative-status dummy variable. We note that the introduction of the interaction term has improved the model. Compared with the reduced model, the full model has a higher adjusted R^2 of 1.71 percent. Furthermore, the addition of the interaction term is truly informative ($\Delta F = 7.31$, $p < .01$). As for the other models, we find that the coefficient of the variable cooperatives dummy is positive and significant ($\beta = 4.20$, $p < .01$) and that of the moderator variable (bank size) is positive and significant ($\beta = .24$, $p < .001$), whereas the interaction term is significant and negative ($\beta = -.23$, $p < .01$). The regression results do not reject the hypothesis that bank size moderates the relationship between the cooperative-status dummy variable and the severity of violation. Overall, we can conclude that our first hypothesis is not rejected in this case. However, the violations are more severe in small cooperative banks than in large ones.

Finally, we note that the sign of the coefficient of the lagged dependent variable of one year is negative in column (1), (2) and (3a), whereas it is positive in column (3b) and (3c). Although the coefficients are not significant, their signs suggest that i) having received a penalty in year ($t - 1$), it a reduced probability of receiving a sanction in the next year is expected; ii) an increase in reported violations in year ($t - 1$) predicts a decrease in the violations of year t; iii) with regard to the severity, the sign of the coefficient suggests that where the board is sanctioned in two consecutive years, usually the violation of the following year is more serious than that of the previous year. We also reach the same conclusions by the dependent variable lagged two years (not tabulated). In addition, we estimated the models separately for cooperative banks and joint-stock banks (not tabulated). The signs of the lagged dependent variable are consistent with the previous ones; therefore, they show no difference between the two groups of banks. Even these estimates return insignificant coefficients for the lagged dependent variable.

With respect to Hypothesis 2, in Table 6, we present the results of the probit models with the probability that the bank board incurs penalties for deficiencies in credit management as the dependent variable. The regressors of this model are the same as those considered for the estimation of model [1] (column 1 of Table 5). The results show that the probability of sanctions on the boards of cooperative banks is higher for deficiencies in credit management ($\beta = .65$, $p < .001$). Thus, Hypothesis 2 is not rejected. As noted previously, for comparative purposes, Table 6 presents the estimation of this model using as a dependent variable the probability that the bank board incurs penalties for deficiencies in i) organization and internal controls and ii) risk management. With only marginal significance, the probability of sanctions on the board of cooperative banks is higher for deficiencies in organization and internal control ($\beta = .23$, $p < .10$). On the contrary, cooperative and joint-stock banks do not differ significantly as regards board deficiencies in risk management ($\beta = .14$, $p > .10$).

Insert Table 6 about here

Finally, to test the mediating effect of board turnover (Hypothesis 3), we first estimate the model in equation [4]. Accordingly, Table 7 presents in column (2) the results estimated using the robust standard errors of model [4], which tests the relationship between our main independent variable (the cooperative-status dummy variable) and the mediator variable, namely, board turnover; column (4) shows the results of the model that analyzes the influence of the independent variable on the dependent variable, namely, the probability of sanctions imposed on a bank board; column (5) shows the results of the model that analyzes the relationship between the mediator and the dependent variable; column (6) shows the results of the full model that contains as regressors the independent and the mediator variables. Finally, columns (1) and (3) contain only control variables.

Insert Table 7 about here

Table 7 indicates that our key independent variable (the dummy for cooperative bank status) has a highly significant and negative effect on board turnover ($\beta = -.05$, $p < .001$) and a highly significant and positive effect on the probability of sanctions being imposed on a bank board ($\beta = .42$, $p < .001$). In particular, in column (5), we show that the mediator variable negatively affects the probability of sanctions imposed on a bank board ($\beta = -1.88$, $p < .001$). Finally, in column (6), we show that when the mediator is added to the model with the independent variable, the latter remains significant ($\beta = .35$, $p < .01$) as well as the mediator variable ($\beta = -1.80$, $p < .001$). However, the coefficient of the cooperative-status dummy variable is reduced from .42 (in column 4) to .35 (column 6), and the significance level of the coefficient is reduced from .001 to .01. Thus, we can conclude that board turnover partially mediates the relationship between the cooperative status of a bank and the probability that its board has been sanctioned by the supervisory authority. As a consequence, Hypothesis 3 is partially supported.

Robustness Checks

Table 5 shows that our results are robust to changes in the dependent variable, our proxy for board deficiency, and to different model specifications. Using either the number of violations or the severity of the penalty instead of the probability that sanctions were imposed on the board as the dependent variable, the results are consistent with previous specifications. Moreover, we conducted the following robustness tests. First, we re-estimated the models in Table 5 using bootstrapped robust standard errors with 500 replicates (Cameron & Trivedi, 2010). The results confirm those shown in Table 5. Using the same technique, we re-estimated the models presented in Tables 6 and 7. Additionally, the bootstrapped robust standard errors generally confirm the previous results. The only exception is for the model

shown in column (1) of Table 6, in which the use of bootstrapped robust standard errors highlights the non-significance of the cooperative-status dummy variable. We also estimated the models in Tables 5, 6 and 7 excluding the dependent variable lagged one year from the regressors to assess the effects of serial correlation. The results were unchanged.

In addition, we tested the effects of balancing our panel. Despite the loss of approximately 800 observations, coefficients obtained by the re-estimation of previous models on a balanced panel did not change our results.

Given the differences between cooperative and joint-stock banks, a further robustness test is necessary to control for the possibility that the sanctions we analyzed are not directly related to the ineffectiveness of the boards but to the bank institutional settings. In other words, we need to control for the possibility that cooperatives are structurally more likely to be sanctioned, despite their board members. To control for this possibility, we used the financial crisis to divide our time period into two sub-periods: a pre-crisis period from 2006 to 2007 and a crisis period from 2008 to 2012. Although the financial and credit crisis broke out globally in late 2007, the effect on the Italian economy and banking system is, according to the Bank of Italy, evident beginning in 2008 (Annual Report, Bank of Italy, 2009). This year also corresponds to the first record of a negative GDP in Italy. For the second period, it was difficult to detect any recovery because the sovereign debt crisis strongly affected Italy between 2011 and 2012. Therefore, we considered the entire period from 2008 to 2012 as the crisis period. Using a balanced panel, we run a pre-post treatment analysis where banks in the pre-crisis period serve as their own control for the crisis period (Greene, 2012). This procedure would alleviate firm specific factors that may be influencing the test variables. Table 8 shows the results of this analysis.

Insert Table 8 about here

We find that when the board deficiency is proxied by both the probability of sanction (column 1) and the number of infringements (column 2), it does not emerge any significant difference between JSBs and cooperatives. The interaction term between the Cooperative dummy and the Crisis dummy is not significant in both estimations and thus the slopes of the relationship between bank institutional setting and board deficiency in the pre-post periods do not differ significantly for JSBs and cooperatives. Additionally, we find that the variable Cooperative is not significant as well. Overall, these evidences suggest that there is no difference between the two types of banks with respect to the sanctioning process. In a post hoc analysis of the predictive marginal effects of the interaction term, we find evidence that in the pre-crisis period cooperatives had a slightly higher and significantly ($p < .05$) probability to be sanctioned than JSB banks. During the crisis, however, this evidence is weaker and insignificant ($p > .10$) so that JSB and cooperatives have indeed very similar probability of being sanctioned. Remarkably, when the dependent variable is the number of infringements, we do not observe any significant difference in slopes between Cooperatives and JSBs in pre-crisis and crisis period. As to the gravity of sanctions, in column (3b) of Table 8, we find only a weak significance for the cooperative dummy ($\beta = 4.99$, $p < .10$), based on a relative smaller number of observations compared to the unbalanced panel. Therefore, these results offer comprehensive evidences in support of the view that there is no a persistent and significant disparity in the treatment of the supervisory authority when dealing with cooperatives or JSBs.

Furthermore, in line with the literature on corporate fraud, we re-estimated the probit model in column (1) of Table 5 using a bivariate probit model to account for the partial observability of board misconduct (Poirier, 1980). The literature shows that the probability of observing bad behavior is the result of two latent probabilities, i.e., the probability that the board engages in bad behavior and the likelihood of detection (Khanna, Kim, & Lu, 2014;

Nguyen, Hagendorff, & Eshraghi, 2015; Wang, 2013). However, we are able to observe only the bad behavior that has been detected. It has thus been argued that a standard probit model is unable to differentiate between the two probabilities. For this reason, the literature suggests using a bivariate probit model to account for the fact that the probability of observing a board's bad behavior is determined by the two distinct and latent processes mentioned above. This model assumes that the two processes are correlated with each other (Cameron & Trivedi, 2010). However, if the two processes are not correlated, the bivariate probit model may not be necessary, and a standard probit model is suitable. In our case, the results of the bivariate probit model rejected the existence of a significant correlation between the two processes, so we opted for an estimate based on a standard probit model. The low correlations, in our setting, may be attributable to the regularity of the supervisory authority's controls on board behavior. We anticipate that the results of the bivariate probit model will confirm those obtained with the standard probit model. All the tables related to the robustness test that are not reported here are available upon request.

DISCUSSION AND CONCLUSIONS

This study contributes to the literature on bank governance in several ways. Although bank governance is a subject of wide debate in the literature, to the authors' knowledge, no empirical study has focused on cooperative bank governance. Based on the peculiar characteristics of the cooperative model in banking, we suggested and empirically demonstrated that the boards of directors of cooperative banks are more ineffective than those of joint-stock banks; this is true for small cooperatives in particular. Furthermore, we suggest that board turnover significantly mediates the relationship between the cooperative model and board ineffectiveness.

This empirical analysis focused on all operative Italian banks over the period 2006-2012, with a final sample of 638 cross-sectional units. Compared with other works on corporate governance, our work is distinctive from a theoretical and methodological standpoint. Although the current literature on corporate governance focuses on the shareholder perspective, using financial performance as a proxy for the effectiveness of governance mechanisms, in our study, we take the supervisory authority perspective and focus on internal governance systems. The effectiveness of corporate governance is thus measured in terms of board deficiency detected by the Italian supervisory authority; the proxy for this variable is the sanctions for misconduct inflicted on the boards of directors of Italian banks.

Our empirical evidence does not lead us to reject the hypothesis that cooperative boards are more ineffective than boards of joint-stock banks. In particular, regression results show that cooperative boards have on average a higher probability of being deficient, incurring a greater number of violations and, especially for small cooperatives, being more severely penalized. These findings support the theory that emphasizes the drawbacks of governance in cooperative banks (Llewellyn, 2006, 2007). Our results also highlight a specific bank process whereby board deficiencies are more likely to occur in cooperative banks than in joint-stock banks: credit management. Cooperative banks operate in limited local areas and mainly serve their members. This arrangement is considered beneficial for cooperatives because it reduces moral hazard through peer monitoring to enhance credit quality (Banerjee, Besley, & Guinnane, 1994). However, the close relations that are established between the directors and the bank's customers, who are generally also the owners of the bank, can lead to negative effects because board members may be tempted to favor their friends, their own interests, or those of the coalition of owners who elected them rather than promote the welfare of all. Consequently, they may also finance borrowers with financial problems or put less effort into monitoring borrowers.

To explain these findings, we investigated the effect of board turnover as a potential mediating variable in the relationship between the cooperative bank model and board deficiencies. Consistent with the previous literature, our results show that in cooperatives, board turnover is lower than in joint-stock banks (Battistin, Graziano, & Parigi, 2012). Additionally, our research contributes to the literature by demonstrating the existence of a partial but significant mediating effect of board turnover on the relationship between the cooperative model and board deficiency. Consequently, the cooperative model has an indirect impact on board ineffectiveness through board turnover. Therefore, we can conclude that in cooperative banks, board deficiencies are partially explained by low board turnover. This situation increases the risk, on one hand, that cooperative directors will build close relationships with managers and become less objective in their monitoring. On the other hand, they could become powerful and use the bank to pursue their own interests (for example, by lending money to less reliable borrowers). Although these results are, again, in line with agency theory, they also have practical implications for bank corporate governance regulations as they suggest the need to consider low board turnover as an important weakness of the boards of cooperative banks. More generally, further research should help clarify the extent and the implications of the specialness of cooperative banks' governance model, which has been neglected thus far, and to consider how regulators should address this model in terms of new standards. This research should also consider an international perspective.

NOTES

[1] Not-for-profit organizations are typically characterized by ambiguous ownership (Cornforth, 2003; Miller, 2002), except for cooperatives where the ownership is well-defined. The members are the owners as they have underwritten the shares and have their voting rights.

[2] Cooperatives are typically not subject to the non-distribution constraint that is the defining characteristics of not-for-profit organizations (Hansmann, 1980; Levi & Davis, 2008).

[3] More than 95 percent of all the sanctions that we examined involve the bank board as a whole. In only a few cases, we found sanctions that involved a limited number of directors. However, in the latter cases, the chairman was always involved.

[4] Sanctioned directors must pay the amount due within 30 days from the notification of the decision. The bank is jointly liable with the sanctioned directors but has the right to claim against them.

[5] This geographical breakdown is the same as those used by the Italian bureau of statistics (ISTAT) and by EUROSTAT.

[6] As suggested by the literature, count variables should be modeled using a Poisson model or a negative binomial regression (Cameron & Trivedi, 1998). The first model is suitable when the conditional variance and the conditional mean of the dependent count variable are not different, in other words, when there is no data overdispersion. On the contrary, when overdispersion arises, (i.e., when the variance of the dependent is significantly higher than their average), the negative binomial model is more appropriate. Our analysis shows significant data overdispersion; therefore, we used a negative binomial model.

[7] In these cases, the use of an OLS regression to model such a variable is unsuitable for several reasons, primarily because it would yield negative values, although the amount of a penalty is always greater than or equal to 0.

[8] Given that zero sanctions are a frequent data point, the factors that explain the probability of being sanctioned may be not the same as those that affect the severity of sanctions. Therefore, it would be appropriate to use two models to explain these two phenomena.

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TABLE 1
Summary Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Bank size (*€/billion*)	4176	3.92	24.5	.003214	438
Bank age (*year*)	4176	58.06	43.60	.5	183
Loans/TA	4176	.66	.18	.006	.99
NPL/Gross Loan	3832	8.25	6.53	0	215.87
Roe	4175	.05	.09	-.74	.91
Board size	4176	9.74	2.84	5	24
Gender diversity	4176	.05	.07	0	.44
Board turnover	4172	.13	.20	0	1.42
No of Board meetings	3842	16.05	2.76	8	25
No of infringements	4176	.13	.56	0	10
Severity of penalty (*€/thousand*)	4176	11.42	101.16	0	4,008.77

Bank size denotes the amount of total assets. *Bank age* denotes the age of a bank. *Loans/TA* is the ratio of loans to total assets as a proxy for the bank business model. *NPL/Gross Loans* is a measure of bank risk, expressed as the ratio between non-performing loans and gross loans. *ROE* is the return on equity. *Board size* denotes the number of board members. *Gender diversity* denotes the proportion of female members on the board. *Board meetings* denotes the frequency of board meetings. *Board turnover* denotes the board members' turnover. *No. of infringements* denotes the number of notified violations. *Severity of penalty* denotes the amount (€/000) of the penalty imposed on board members by the Authority.

TABLE 2
Time Trend and Recidivism of Sanctioned Boards by Institutional Setting

No. of banks with sanctioned board members:	2006	2007	2008	2009	2010	2011	2012	Total	JSB[d]		Coop.[e]	
	Pre-crisis		Crisis						No.	%	No.	%
the first time	39	34	37	31	36	32	10	219	63	32%	156	35%
the second time[a]	-	4	10	8	12	10	11	55	13	6.7%	42	9.5%
the third time[b]	-	-	1	2	2	5	3	13	3	1.5%	10	2.3%
the fourth time[c]	-	-	-	-	-	-	1	1	0	0%	1	0.2%
Total No. of sanctions	39	38	48	41	50	47	25	288				

[a] No. of banks sanctioned for the second time, having already received a penalty in a previous year
[b] No. of banks sanctioned for the third time, having already received two penalties in two of previous years
[c] No. of banks sanctioned for the fourth time, having already received three penalties in three of previous years
[d, e] The columns JSB and Coop. show the number (No) of sanctioned joint-stock and cooperative banks and their percentage (%) over the total number of joint-stock (198) and cooperative (440) banks, respectively.

TABLE 3
Univariate Tests of Difference Between Joint-Stock and Cooperative Banks and between Sanctioned and Non-Sanctioned Banks

Variable	Joint-Stock Banks	Cooperative Banks	t-value	Non-Sanctioned	Sanctioned	t-value
Bank size (*ln*)	21.50	19.32	49.22***	20.01	19.88	1.29
Bank age (*ln*)	2.97	3.90	-27.26***	3.62	3.40	3.29**
Loans/TA	.64	.67	-4.60***	.66	.66	.23
NPL/Gross Loan (*ln*)	1.79	2.14	-15.80***	2.01	2.38	-9.48***
Roe (*ln*)	.04	.04	-.57	.045	-.001	7.79***
Board size (*ln*)	2.33	2.19	14.36***	2.23	2.28	-2.66**
Gender diversity	.04	.05	-7.06***	.05	.05	.07
Board turnover (*ln*)	.15	.08	13.17***	.11	.07	4.41***
No. of Board meetings (*ln*)	2.77	2.76	1.32†	2.76	2.75	1.43†
No. of infringements	.12	.13	-.69			
Severity of penalty (*€/thousand*)	20.13	7.44	3.77**			
No. of observations	1309	2867		278	3898	

Bank size denotes the natural logarithm of total assets. *Bank age* denotes the natural logarithm of the age of a bank. *Loans/TA* is the ratio of loans to total assets as a proxy for the bank business model. *NPL/Gross Loans* is a measure of bank risk, expressed as the natural logarithm of non-performing loans on gross loans. *ROE* is the natural logarithm of return on equity. *Board size* is the natural logarithm of the number of board members. *Gender diversity* denotes the proportion of female members on the board. *Board turnover* denotes the natural logarithm of board members' turnover. *Board meetings* denotes the natural logarithm of the frequency of board meetings. *No. of infringements* denotes the number of notified violations. *Severity of penalty* denotes the amount (€/000) of the penalty imposed on board members by the Authority.

† $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

TABLE 4
Correlation Matrix – Pearson Coefficients

	1	2	3	4	5	6	7	8	9	10	11
1. *Bank size* (*ln*)	1										
2. *Bank age*(*ln*)	-.08**	1									
3. *Loans/TA*	.14**	.16**	1								
4. *NPL/Gross Loan* (*ln*)	-.22**	.11**	.03	1							
5. *Roe* (*ln*)	.10**	.06**	-.09**	-.36**	1						
6. *Board size*	.47**	-.15**	.08**	-.10**	.05**	1					
7. *Gender diversity*	-.05**	.08**	.04*	.09**	-.04**	.02	1				
8. *Board turnover*	.11**	-.17**	-.06**	.04*	-.10**	.07**	.08**	1			
9. *Board meetings*	.03	-.01	-.004	-.001	.01	.003	-.003	.02	1		
10. *No. of infringements*	-.01	-.06**	.001	.13**	-.13**	.04**	-.01	-.06**	-.02	1	
11. *Severity of penalty*	.09**	-.02	.01	.04**	-.05**	.08**	-.01	-.03*	-.002	.55**	1

Bank size denotes the natural logarithm of total assets. *Bank age* denotes the natural logarithm of the age of a bank.

Loans/TA is the ratio of loans to total assets as a proxy for the bank business model. *NPL/Gross Loans* is a measure of bank risk, expressed as the natural logarithm of non-performing loans on gross loans. *ROE* is the natural logarithm of return on equity. *Board size* is the natural logarithm of the number of board members. *Gender diversity* denotes the proportion of female members on the board. *Board turnover* denotes the natural logarithm of board members' turnover. *Board meetings* denotes the natural logarithm of the frequency of board meetings. *No. of infringements* denotes the number of notified violations. *Severity of penalty* denotes the amount (€) of the penalty imposed on board members by the Authority.
† p < .10
* p < .05
** p < .01
*** p < .001

TABLE 5
Regression Results of Board Deficiency

Dependent Variable	Prob. (sanction)	No. of infringements	Two-part model: Severity of penalty		
Estimation Method	Probit model	Negative binomial model	Part I: Binary model	Part II: OLS Regression	
	(1)	(2)	(3a)	(3b)	(3c)
Control variables					
Bank size (*ln*)	.02	.01	.02	.13*	.24***
	(.44)	(.12)	(.49)	(2.45)	(3.76)
Bank age (*ln*)	-.17***	-.28***	-.15***	-.04	-.03
	(-4.01)	(-3.91)	(-4.09)	(-.80)	(-.67)
Loans/TA	.58*	1.39*	.57†	.38	.48
	(1.97)	(2.40)	(1.89)	(1.18)	(1.49)
NPL/Gross loans (*ln*)	.60***	1.16***	.55***	.24*	.22*
	(7.52)	(6.86)	(7.06)	(2.37)	(2.19)
Abnormal ROE	.59***	1.08***	.59***	.24†	.28*
	(5.33)	(5.56)	(5.52)	(1.80)	(2.11)
M&A	.37†	1.08*	.32	.47	.35
	(1.76)	(2.23)	(1.49)	(1.24)	(.97)
Listed bank	.74***	1.79***	.69***	.57*	.41
	(3.40)	(4.19)	(3.30)	(2.13)	(1.52)
C.G. model	.17	.01	.07	-.03	-.35
	(.28)	(.00)	(.11)	(-.11)	(-1.22)
Board size (*ln*)	.27†	.46	.25	.69***	.73***
	(1.66)	(1.50)	(1.59)	(3.46)	(3.74)
Gender diversity	.27	.30	.19	-.89	-.69
	(.53)	(.31)	(.43)	(-1.25)	(-.98)
Board meetings (*ln*)	-.25	-.32	-.24	.16	.14
	(-1.25)	(-.79)	(-1.36)	(.58)	(.51)
Board turnover (*ln*)	-1.79***	-3.23***	-1.66***	.23	.25
	(-5.96)	(-5.18)	(-5.51)	(.59)	(.63)
$Sanctions_{(t-1)}$	-.21	-.001	-.015	.003	.01

	(-1.36)	(-.01)	(-.12)	(.22)	(.42)
Independent variable					
Cooperative	.35**	.55*	.34**	-.38*	4.20**
	(2.62)	(2.19)	(2.85)	(-2.21)	(2.72)
Cooperative × *Bank size*					-.23**
					(-2.90)
Intercept	-5.79***	-8.22***	-5.60***	6.27***	3.92**
	(-5.90)	(-4.21)	(-6.37)	(4.80)	(2.63)
Year dummies	Yes	Yes	Yes	Yes	Yes
Location dummies	Yes	Yes	Yes	Yes	Yes
No. of observations	3829	3829	3829	278	278
Wald χ^2	184.35***	293.34***	227.85***		
LR test against pooled	5.88**	.37			
LR test against a Poisson		453.67***			
Vuong test		.34			
Δ*F*-value				5.98***	7.31**
Adj. R^2				.29	.31

This table reports the regression results on board deficiency for cooperative vs. joint-stock banks. In column (1), we examine whether the board of a cooperative bank is more likely to incur sanctions by the Supervisory Authority than the board of joint-stock banks. In column (2), we examine whether the board of cooperative banks incurs more infringements than the board of joint-stock banks. In column (3), we examine whether board deficiency is more severe in cooperative than in joint-stock banks. *Bank size* denotes the natural logarithm of total assets. *Bank age* denotes the natural logarithm of the age of a bank. *Loans/TA* is the ratio of loans on total assets as a proxy for the bank business model. *NPL/Gross Loans* is a measure of bank risk, measured as the natural logarithm of non-performing loans on gross loans. *Abnormal ROE* is a dummy variable equal to 1 if the ROE of a bank is higher or lower than the 90th or 10th percentile, respectively. *M&A* is a dummy variable equal to 1 if a bank acquires another bank in a given year. *Listed bank* is a dummy variable equal to 1 if a bank is listed in a stock exchange market. *C.G. model* is a dummy variable equal to 1 for banks using a two-tier governance model. *Board size* is the natural logarithm of the number of board members. *Gender diversity* denotes the proportion of female members on the board. *Board meetings* denotes the natural logarithm of the frequency of board meetings. *Board turnover* denotes the natural logarithm of board member turnover. $Sanctions_{(t-1)}$ is the dependent variable lagged one year. *Cooperative* is a dummy equal to 1 if a bank is a cooperative and 0 otherwise. Year and location dummies control for year and location fixed effects. Z values are reported in parentheses. Standard errors are clustered at the bank level.

† $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

TABLE 6
Probit Regression Results of Board Deficiency by Type of Violation

Dependent variable	Probability of sanctions for deficiencies in		
	organization and internal control	credit management	risk management

	(1)	(2)	(3)
Control variables			
Bank size (*ln*)	.05	.03	-.08
	(1.10)	(.68)	(-1.14)
Bank age (*ln*)	-.20***	-.14**	-.21**
	(-4.12)	(-2.87)	(-2.77)
Loans/TA	.36	1.54***	1.11*
	(1.12)	(3.58)	(1.99)
NPL/Gross loans (*ln*)	.51***	.82***	.38**
	(5.60)	(7.67)	(2.77)
Abnormal ROE	.50***	.61***	.33†
	(4.12)	(4.73)	(1.91)
M&A	.29	.09	.50
	(1.25)	(.31)	(1.60)
Listed bank	.48†	.97***	1.54***
	(1.95)	(3.56)	(4.11)
C.G. model	.32	-5.66	-4.87
	(.50)	(-.00)	(-.01)
Board size (*ln*)	.18	.07	-.09
	(1.00)	(.37)	(-.32)
Gender diversity	.39	.33	.38
	(.67)	(.55)	(.45)
Board meetings (*ln*)	-.18	-.13	-.03
	(-.79)	(-.56)	(-.08)
Board turnover (*ln*)	-1.98***	-1.90***	-1.36*
	(-5.36)	(-4.95)	(-2.57)
$Sanctions_{(t-1)}$	-.13	-.46*	.16
	(-.62)	(-2.13)	(.40)
Independent variable			
Cooperative	.23†	.65***	.14
	(1.57)	(3.75)	(.60)
Intercept	-6.34***	-7.68***	-4.49**
	(-5.63)	(-6.18)	(-2.71)
Year dummies	Yes	Yes	Yes
Location dummies	Yes	Yes	Yes
No. of observations	3829	3829	3829
Wald χ^2	126.04***	138.33***	58.69***
χ^2 test against pooled	4.57*	2.51†	1.64†

This table reports the regression results on board deficiency by type of violation. In column (1), (2) and (3), we examine whether the board of a cooperative bank is more likely to incur sanctions than the board of joint-stock banks for deficiency in organization and internal control, credit management and risk management, respectively. *Bank size* denotes the natural logarithm of total assets. *Bank age* denotes the natural logarithm of the age of a bank. *Loans/TA* is the ratio of loans on total assets as a proxy for the bank business model. *NPL/Gross Loans* is a measure of bank risk, measured as the natural logarithm of non-performing loans on gross loans. *Abnormal ROE* is a dummy variable equal to 1 if the ROE of a bank is

higher or lower than the 90th or 10th percentile, respectively. *M&A* is a dummy variable equal to 1 if a bank acquires another bank in a given year. *Listed bank* is a dummy variable equal to 1 if a bank is listed in a stock exchange market. *C.G. model* is a dummy variable equal to 1 for banks using a two-tier governance model. *Board size* is the natural logarithm of the number of board members. *Gender diversity* denotes the proportion of female members on the board. *Board meetings* denotes the natural logarithm of the frequency of board meetings. *Board turnover* denotes the natural logarithm of board member turnover. $Sanctions_{(t-1)}$ is the dependent variable lagged one year. *Cooperative* is a dummy equal to 1 if a bank is a cooperative and 0 otherwise. Year and location dummies control for year and location fixed effects. Z values are reported in parentheses. Standard errors are clustered at the bank level.

† p < .10
* p < .05
** p < .01
*** p < .001

TABLE 7
Regression Results of the Mediation Effect of Board Turnover on the Relationship between Cooperative Banks and Board Deficiency

Dependent variable	Board Turnover		Board deficiencies - Prob. (sanction)			
	(1)	(2)	(3)	(4)	(5)	(6)
Control variables						
Bank size (*ln*)	.01***	.002	-.06†	.02	-.04	.02
	(4.70)	(.62)	(-1.82)	(.46)	(-1.33)	(.44)
Bank age (*ln*)	-.01***	-.01**	-.10**	-.14***	-.13***	-.17***
	(-4.61)	(-2.63)	(-2.76)	(-3.69)	(-3.36)	(-4.01)
Loans/TA	-.01	-.003	.48†	.50†	.57†	.58*
	(-.22)	(-.13)	(1.74)	(1.80)	(1.95)	(1.97)
NPL/Gross loans (*ln*)	.01†	.01*	.58***	.56***	.62***	.60***
	(1.84)	(2.52)	(7.67)	(7.35)	(7.77)	(7.52)
Abnormal ROE			.45***	.53***	.53***	.59***
			(4.35)	(5.01)	(4.87)	(5.33)
M&A			.332†	.31	.39†	.36†
			(1.66)	(1.56)	(1.85)	(1.76)
Listed banks	.03	.02	.61**	.71***	.66**	.74***
	(1.51)	(1.11)	(2.99)	(3.47)	(3.03)	(3.40)
Bank performance$_{(t-1)}$ (*ln*)	-.16***	-.14**				
	(-3.77)	(-3.16)				
C.G. Model	.03	.05	.16	.001	.30	.17
	(.77)	(1.61)	(.26)	(.00)	(.48)	(.28)
Board size (*ln*)			.35*	.27†	.34*	.27†
			(2.30)	(1.76)	(2.11)	(1.66)
Gender diversity			-.02	-.11	.35	.27
			(-.05)	(-.23)	(.68)	(.53)
Board meetings (*ln*)			-.26	-.25	-.26	-.25
			(-1.38)	(-1.30)	(-1.30)	(-1.25)
Sanctions$_{(t-1)}$			-.30*	-.29*	-.20	-.21

			(-2.05)	(-2.00)	(-1.32)	(-1.36)
Independent variable						
Cooperative		-.05***		.42***		.35**
		(-5.48)		(3.30)		(2.62)
Mediator						
Board turnover (*ln*)					-1.88***	-1.80***
					(-6.22)	(-5.96)
Intercept	-.06	.11*	-4.38***	-5.84***	-4.58***	-5.79***
	(-1.31)	(2.12)	(-5.30)	(-6.23)	(-5.32)	(-5.90)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Location dummies	Yes	Yes	Yes	Yes	Yes	Yes
No. of observations	3271	3271	3831	3831	3829	3829
Δ*F*-value	12.06***	30***				
Adj. R^2	.05	.06				
Wald χ^2			157.88***	169.99***	178.51***	184.35***
χ^2 test against pooled	4.57*	.00	5.57**	3.37*	7.51**	5.88**

This table reports the regression results of the mediation effect of board turnover on the relationship between cooperative banks and board deficiency. *Bank size* denotes the natural logarithm of total assets. *Bank age* denotes the natural logarithm of the age of a bank. *Loans/TA* is the ratio of loans on total assets as a proxy for the bank business model. *NPL/Gross Loans* is a measure of bank risk, measured as the natural logarithm of non-performing loans on gross loans. *Abnormal ROE* is a dummy variable equal to 1 if the ROE of a bank is higher or lower than the 90th or 10th percentile, respectively. *M&A* is a dummy variable equal to 1 if a bank acquires another bank in a given year. *Listed bank* is a dummy variable equal to 1 if a bank is listed in a stock exchange market. *C.G. model* is a dummy variable equal to 1 for banks using a two-tier governance model. *Board size* is the natural logarithm of the number of board members. *Gender diversity* denotes the proportion of female members on the board. *Board meetings* denotes the natural logarithm of the frequency of board meetings. *Board turnover* denotes the natural logarithm of board member turnover. $Sanctions_{(t-1)}$ is the dependent variable lagged one year. *Cooperative* is a dummy equal to 1 if a bank is a cooperative and 0 otherwise. Year and location dummies control for year and location fixed effects. Z values are reported in parentheses. Standard errors are clustered at the bank level.

† $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

TABLE 8
Regression Results of Board Deficiency – Pre-Post Design approach.

	(1)	(2)	(3)	
Dependent Variable	Prob. (sanction)	No. of infringements	Two-part model: Severity of penalty	
Estimation Method	Probit model	Negative binomial model	Part I: Binary model	Part II: OLS Regression
	(1)	(2)	(3a)	(3b)
Control variables				
Bank size (*ln*)	.05	.10	.05	.24***
	(1.03)	(.99)	(1.03)	(3.76)
Bank age (*ln*)	-.07	-.15	-.07	-.03
	(-1.45)	(-1.51)	(-1.45)	(-.67)
Loans/TA	.45	1.01	.45	.48
	(1.11)	(1.25)	(1.11)	(1.49)
NPL/Gross loans (*ln*)	.59***	1.23***	.59***	.22*
	(6.01)	(6.39)	(6.01)	(2.19)
Abnormal ROE	.55***	1.35***	.55***	.28*
	(3.95)	(5.28)	(3.95)	(2.11)
M&A	.40†	1.18*	.40†	.35
	(1.77)	(2.42)	(1.77)	(.97)
Listed bank	.87***	1.98***	.87***	.41
	(3.47)	(4.35)	(3.47)	(1.52)
C.G. model	.04	.38	.04	-.35
	(.04)	(.15)	(.04)	(-1.22)
Board size (*ln*)	.34*	.72†	.34*	.73***
	(1.73)	(1.75)	(1.73)	(3.74)
Gender diversity	-.02	.64	-.02	-.69
	(-.04)	(.54)	(-.04)	(-.98)
Board meetings (*ln*)	-.18	.032	-.18	.14
	(-.86)	(.08)	(-.86)	(.51)
Board turnover (*ln*)	-2.00***	-4.46***	-2.00***	.25
	(-4.71)	(-4.70)	(-4.71)	(.63)
$Sanctions_{(t-1)}$	.11	.14	.11	.01
	(.78)	(1.06)	(.78)	(.42)
Crisis	-.52†	-1.68**	-.52†	-.46
	(-1.91)	(-2.88)	(-1.91)	(-1.23)
Independent variable				
Cooperative	.38	.39	.38	4.99†
	(1.49)	(.71)	(1.49)	(1.80)
Cooperative × *Bank size*				-.29*
				(-2.28)
Cooperative × *Crisis*	.05	.44	.05	.33
	(.19)	(.85)	(.19)	(.83)
Intercept	-7.02***	-11.77***	-7.02***	2.31
	(-6.18)	(-5.14)	(-6.18)	(1.02)
Year dummies	Yes	Yes	Yes	Yes
Location dummies	Yes	Yes	Yes	Yes
No. of observations	3237	3237	3237	186
Wald χ^2	137.37***	226.3***	159.62***	

Δ*F*-value			7.79***
Adj. R^2			.479
LR test against pooled	1.50	.52	
LR test against a Poisson		242.66***	

This table contains the results of the same models estimated in Table 6; however, in this table, we run a pre-post design approach. *Bank size* denotes the natural logarithm of total assets. *Bank age* denotes the natural logarithm of the age of a bank. *Loans/TA* is the ratio of loans on total assets as a proxy for the bank business model. *NPL/Gross Loans* is a measure of bank risk, measured as the natural logarithm of non-performing loans on gross loans. *Abnormal ROE* is a dummy variable equal to 1 if the ROE of a bank is higher or lower than the 90th or 10th percentile, respectively. *M&A* is a dummy variable equal to 1 if a bank acquires another bank in a given year. *Listed bank* is a dummy variable equal to 1 if a bank is listed in a stock exchange market. *C.G. model* is a dummy variable equal to 1 for banks using a two-tier governance model. *Board size* is the natural logarithm of the number of board members. *Gender diversity* denotes the proportion of female members on the board. *Board meetings* denotes the natural logarithm of the frequency of board meetings. *Board turnover* denotes the natural logarithm of board member turnover. $Sanctions_{(t-1)}$ is the dependent variable lagged one year. *Crisis* is a dummy variable equal to 1 for years from 2008 to 2012. *Cooperative* is a dummy equal to 1 if a bank is a cooperative and 0 otherwise. *Cooperative* × *Bank size* is an interaction term between bank institutional setting and bank size. *Cooperative* × *Crisis* is an interaction term between bank institutional setting and the *Crisis* dummy. Year and location dummies control for year and location fixed effects. Z values are reported in parentheses. Standard errors are clustered at the bank level.

† $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$